Rat BDNF ELISA Kit

Catalog No. EK0308

Size 96T

Range 31.2pg/ml-2000pg/ml

Sensitivity < 2pg/ml

Specificity

No detectable cross-reactivity with any other cytokine.

Storage

Store at 4℃for frequent use, at -20℃ for infrequent use.

Avoid multiple freeze-thaw cycles (Shipped with wet ice.)

Expiration

Four months at 4℃ and eight months at -20℃.

Application

For quantitative detection of rat BDNF in serum, plasma, body fluids, tissue lysates or cell culture supernates.

Principle

Boster's rat BDNF ELISA Kit was based on standard sandwich enzyme-linked immune-sorbent assay technology. Rat BDNF specific-specific polyclonal antibodies were precoated onto 96-well plates. The rat specific detection monoclonal antibodies were biotinylated. The test samples and biotinylated detection antibodies were added to the wells subsequently and then followed by washing with PBS or TBS buffer. Avidin-Biotin-Peroxidase Complex was added and unbound conjugates were washed away with PBS or TBS buffer. HRP substrate TMB was used to visualize HRP enzymatic reaction. TMB was catalyzed by HRP to produce a blue color product that changed into yellow after adding acidic stop solution. The density of yellow is proportional to the rat BDNF amount of sample captured in plate.

Kit Components

1. Lyophilized recombinant rat BDNF standard: 10ng/tube×2.
2. One 96-well plate precoated with anti- rat BDNF antibody.
3. Sample diluent buffer: 30 ml
4. Biotinylated anti- rat BDNF antibody: 130μl, dilution 1:100.
5. Antibody diluent buffer: 12ml.
6. Avidin-Biotin-Peroxidase Complex (ABC): 130μl, dilution 1:100.
7. ABC diluent buffer: 12ml.
8. TMB color developing agent: 10ml.
9. TMB stop solution: 10ml.

Material Required But Not Provided

1. Microplate reader in standard size.
2. Automated plate washer.
3. Adjustable pipettes and pipette tips. Multichannel pipettes are recommended in the condition of large amount of samples in the detection.
4. Clean tubes and Eppendorf tubes.
5. Washing buffer (neutral PBS or TBS).

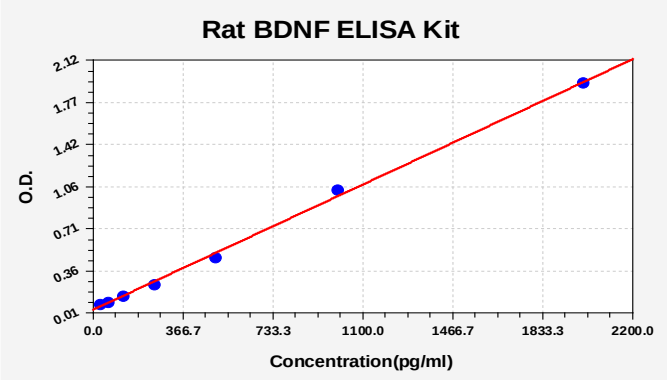
   Preparation of 0.01M **TBS:** Add 1.2g Tris, 8.5g Nacl; 450μl of purified acetic acid or 700μl of concentrated hydrochloric acid to 1000ml H_2O and adjust pH to 7.2-7.6. Finally, adjust the total volume to 1L.

   Preparation of 0.01 M **PBS:** Add 8.5g sodium chloride, 1.4g Na_2HPO_4 and 0.2g NaH_2PO_4 to 1000ml distilled water and adjust pH to 7.2-7.6. Finally, adjust the total volume to 1L.

Notice for Application of Kit

1. To inspect the validity of experiment operation and the appropriateness of sample dilution proportion, pilot experiment using standards and a small number of samples is recommended.
2. The TMB Color Developing agent is colorless and transparent before using, contact us freely if it is not the case.
3. Before using the Kit, spin tubes and bring down all components to the bottom of tubes.
4. Duplicate well assay is recommended for both standard and sample testing.
5. Don't let 96-well plate dry, for dry plate will inactivate active components on plate.
6. Don't reuse tips and tubes to avoid cross contamination.
7. To avoid to use the reagents from different batches together.
8. In order to avoid marginal effect of plate incubation due to temperature difference (reaction may be stronger in the marginal wells), it is suggested that the diluted ABC and TMB solution will be pre-warmed in 37℃for 30 min before using.

Rat BDNF ELISA Kit-1X96 Well Plate Image



Background

Brain-derived neurotrophic factor (BDNF) is a prosurvival factor induced by cortical neurons that is necessary for survival of striatal neurons in the brain. It is a secreted protein with the molecular weight of 27.8kDa, consisting of 247 amino acids. It is known to promote neuronal survival and differentiation. BDNF shares substantial amino acid sequence identity with nerve growth factor (NGF). BDNF and neurotrophin-3 (NT-3) are two recently cloned neurotrophic factors that are homologous to NGF. mRNA products of the BDNF and NT-3 genes are detected in the adult human brain, suggesting that these proteins are involved in the maintenance of the adult nervous system.[1] BDNF and other neurotrophins are critically involved in long-term potentiation (LTP). BDNF-mediated LTP is induced postsynaptically.[2] BDNF has trophic effects on serotonergic (5-HT) neurons in the central nervous system.[3] BDNF has an essential maintenance function in the regulation of anxiety-related behavior and in food intake through central mediators in both the basal and fasted state.[4] It plays a role in treating breathing disorders such as respiratory insufficiency after spinal injury.[5]

Reference

1. Jones, K. R.; Reichardt, L. F. Molecular cloning of a human gene that is a member of the nerve growth factor family. *Proc. Nat. Acad. Sci.* 87: 8060-8064, 1990.
2. Kovalchuk, Y.; Hanse, E.; Kafitz, K. W.; Konnerth, A. Postsynaptic induction of BDNF-mediated long-term potentiation. *Science* 295: 1729-1734, 2002.
3. Lyons, W. E.; Mamounas, L. A.; Ricaurte, G. A; Coppola, V.; Reid, S. W.; Bora, S. H.; Wihler, C.; Koliatsos, V. E.; Tessarollo, L. Brain-derived neurotrophic factor-deficient mice develop aggressiveness and hyperphagia in conjunction with brain serotonergic abnormalities. *Proc. Nat. Acad. Sci.* 96: 15239-15244, 1999.
4. Rios, M.; Fan, G.; Fekete, C.; Kelly, J.; Bates, B.; Kuehn, R.; Lechan, R. M.; Jaenisch, R. Conditional deletion of brain-derived neurotrophic factor in the postnatal brain leads to obesity and hyperactivity. *Molec. Endocr.* 15: 1748-1757, 2001.
5. Baker-Herman, T. L.; Fuller, D. D.; Bavis, R. W.; Zabka, A. G.; Golder, F. J.; Doperalski, N. J.; Johnson, R. A.; Watters, J. J.; Mitchell, G. S. BDNF is necessary and sufficient for spinal respiratory plasticity following intermittent

hypoxia. *Nature Neurosci.* 7: 48-55, 2004.